

DOCUMENT RESUME

ED 029 009

SP 002 681

By-Smith, Louis M.

Classroom Ethnography and Ecology.

Central Midwestern Regional Educational Lab., St. Ann, Mo.

Spons Agency-Office of Education (DHEW), Washington, D.C.

Pub Date Apr 69

Note-31p.; Presented to the ASCD 14th Annual Western Research Institute, San Francisco, April 24, 1969

EDRS Price MF-\$0.25 HC-\$1.65

Descriptors-\*Classroom Research, Curriculum Evaluation, Educational Psychology, \*Observation

Direct observation of the classroom should be used to generate as well as verify hypotheses about classroom environment and activities. For example, a case study of one classroom (SP 002 697), which was compiled from field notes, discussions, and teacher's written comments, led to the concept of pupil-teacher "contracts" and to hypotheses about teacher awareness. (This method applies not only in the field of educational psychology, but also in supervision and curriculum evaluation.) During subsequent testing of hypotheses, visits to the classroom and school serve to confirm, supplement, or alter conceptions about feedback derived from other sources, such as questionnaires. The validity of classroom observation can be increased with a multimethod, multiperson, multisituation, and multivariable matrix. (A 26-item reference list is included.) (LP)

ED029009

**CLASSROOM ETHNOGRAPHY AND ECOLOGY**

Louis M. Smith  
Central Midwestern Regional Educational Laboratory, Inc.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE  
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE  
PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS  
STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION  
POSITION OR POLICY.

Published by the Central Midwestern Regional Educational  
Laboratory, Inc., a private non-profit corporation  
supported in part as a regional educational laboratory  
by funds from the United States Office of Education,  
Department of Health, Education, and Welfare. The  
opinions expressed in this publication do not neces-  
sarily reflect the position or policy of the Office of  
Education, and no official endorsement by the Office  
of Education should be inferred.

Central Midwestern Regional Educational Laboratory, Inc.  
10646 St. Charles Rock Road  
St. Ann, Missouri 63074  
314-429-3535

April 1969

SP002681

## Classroom Ethnography and Ecology<sup>1</sup>

Louis M. Smith  
Central Midwestern Regional Educational Laboratory, Inc.

It's an unusual experience to sit on a platform, to walk up to a microphone, to begin an hour's talk, and yet to feel that maybe one shouldn't be doing these things and shouldn't be here. For I'm not a member of ASCD. Supervision and Curriculum development are not my trade. And worse than this, I decided some weeks ago that I was going to try to persuade you toward a point of view in educational research. In more brash language, to sell you a bill of goods. And even worse than this, to convince you of something to which my colleagues in educational psychology cast a discouraging if not rejecting glance. To accomplish such an objective, I wish I had the writing skill of John Steinbeck and the smooth social skill which prevailed in his account of Travels with Charley. Recall his episode in northern Michigan when he had parked his camper near a "No Camping" sign:

As I sat secure in the silence, a jeep scuffed to a stop on the road and good Charley left his work and roared. A young man in boots, corduroys, and a red and black checked mackinaw climbed out and strode near. He spoke in the harsh unfriendly tone a man uses when he doesn't much like what he has to do.

---

<sup>1</sup>Presented to the ASCD 14th Annual Western Research Institute in San Francisco, April 24, 1969.

'Don't you know this land is posted? This is private property.'

Normally his tone would have sparked a tinder in me. I would have flared an ugliness of anger and he would then have been able to evict me with pleasure and good conscience. We might even have edged into a quarrel with passion and violence. That would be only normal, except that the beauty and the quiet made me slow to respond with resentment, and in my hesitation I lost it. I said, 'I knew it must be private. I was about to look for someone to ask permission or maybe pay to rest here.'

'The owner don't want campers. They leave papers around and build fires.'

'I don't blame him. I know the mess they make.'

'See that sign on that tree? No trespassing, hunting, fishing, camping.'

'Well,' I said, 'that sounds as if it means business. If it's your job to throw me off, you've got to throw me off. I'll go peacefully. But I've just made a pot of coffee. Do you think your boss would mind if I finished it? Would he mind if I offered you a cup? Then you could kick me off quicker.'

The young man grinned. 'What the hell,' he said. 'You don't build no fires and you don't throw out no trash.'

'I'm doing worse than that. I'm trying to bribe you with a cup of coffee. It's worse than that, too. I'm suggesting a dollop of Old Granddad in the coffee.'

He laughed then. 'What the hell!' he said. 'Let me get my jeep off the road.'

Well, the whole pattern was broken. He squatted crosslegged in the pine needles on the ground and sipped his coffee. Charley sniffed close and let himself be touched, and that's a rare thing for Charley.

[Steinbeck, 1962, pp. 109-110]

If it were late evening, if I had a dollop of bourbon for some coffee, and if I were a John Steinbeck at a campfire in northern

Michigan perhaps the persuading would be easy. But it's not, and I'm not, and the task remains.

Very simply, the first research investigation which we were to call the micro-ethnography of the classroom began several years ago (Smith & Geoffrey, 1968). William Geoffrey, a graduate student in one of my classes, commented upon turning in an MTAI attitude scale, "This is what I think, but it's not what we do in my school." That thrust developed shortly into a conversation and later into an invitation: "Why don't you come down and see what it's like?" Within a year it had developed into a project which focused on the manner in which a middle-class teacher coped with a group of seventh-grade youngsters living in an urban slum. The methodology we used there was deceptively simple. We have now used it in a half-dozen additional studies. We call it participant observation, classroom micro-ethnography, or field work. It is an approach we've found exciting, and the one which I'd like you to consider.

In that first study, the how to do it aspects of the method were very simple. First, during the fall semester of the school year I spent nearly "all day-every day" sitting in the back of Geoffrey's class. Second, I kept detailed longhand field notes of the mundane moment to moment comments, recitations, movement, and problems. Third, I supplemented these records with long summary observations and interpretations which I dictated into a portable stenorette. I kept this in my car and would describe and free associate on what I had seen, heard, and felt during each day at the Washington School. While this doesn't particularly contribute to safe driving, it was a very fruitful

way to spend thirty or forty exciting minutes getting to and from school. Fourth, Geoffrey and I spent long hours talking as I tried to pick his brain for every sensation, perception, and idea connected with teaching his group of children and working at the Washington School. Fifth, Geoffrey kept a briefer but regularly dictated set of notes on his reactions to teaching the class. Finally, and for long months after our semester together, we wrestled with what our data meant and added up to.

The long term goal we settled on was twofold: a careful descriptive narrative of what life was like in the classroom, and a beginning conceptualization or theory of teaching which could be utilized for analyzing or investigating other classrooms. Ultimately and more concretely, our research product became a book we called The Complexities of an Urban Classroom.

Because we were excited by the potential of the method we have tried it out in a number of settings. Let me enumerate these to indicate the scope of problems open for investigation, some of which may be relevant to your own individual needs, and then return to several specific substantive and methodological issues. At the Washington School we found a faculty peer group influential upon the teacher's classroom decision making. Later, we were invited to study a school with a faculty unknown to one another and which was to implement the new elementary education in a uniquely designed building. We lived with the staff during its first year of operation and developed a description and analysis of the Kensington School (Smith & Keith, 1967, 1970). The major source of teachers for the school system of which

the Washington School is a part is City Teachers College. Their apprenticeship program is quite unusual in that each trainee spends two weeks in grades 1, 2, 3, and so forth, in what we came to call the "two by two" program. We observed a number of trainees through their semester's apprenticeship and found some exciting implications of the program (Connor & Smith, 1967). Still later we wanted to pursue the intellectual life in a secondary school class and spent a semester observing a discovery approach to teaching. We tape recorded the totality of the verbal interaction of a first hour general science class (Smith & Brock, In process). This year we are part of an evaluation effort studying the introduction of a computer assisted instruction program into a number of schools in the Appalachian region of Eastern Kentucky. Each effort has its own excitement and idiosyncratic aspects. Each time we've been encouraged to try some new directions (Smith & Pohland, 1969a, 1969b).

### Substantive and Methodological Issues

#### The Contract<sup>2</sup>

Now, I would like to raise in some detail several substantive and methodological issues over which we have struggled. The first of these is a type of teacher-pupil relationship which we call "the contract." As the semester progressed in the Washington School, Geoffrey's relationship with several of the children reached an

---

<sup>2</sup>These materials are adapted from Smith & Geoffrey (1968, pp. 151-153).



equilibrium typified by the expression, "If you don't bother me, I won't bother you." After long weeks of conflict, one boy, Pete, reached this point. In retrospect we might call it a reasonable solution to a difficult situation. Two other boys, Henry H. and Henry L., achieved the same status, although much more quickly. For instance, Geoffrey's notes on October 1 relate that Henry H. chose the Washington School instead of the state reformatory. In addition, Henry H. once said to a classmate's probe regarding his work habits, "If I had failed seventh grade as many times as I had you wouldn't do anything either." The notes indicate also he was arrested in late October because of an incident involving "stripping down" a car. Geoffrey was not clear whether he was asked or "cornered" into it. In his February summary notes, Geoffrey reflected upon Henry H.:

A waste of average talent. Could function satisfactorily in an average job. Can function well intellectually at sixth- and in some areas seventh-grade level. A chronic truant in the past, his appearances at school were enforced by the order of the court. Perhaps he can grow up and conduct the secondhand store or a similar enterprise with some capability and shrewdness, and occasionally with pure crookedness. He behaved himself somewhat well in the classroom, except that he bugged Susan and others around him whenever he could do so quietly. Not doing any work, he must have found the days long, and this entertainment was not too serious a violation.

The critical cues that Geoffrey seemed to respond to were (1) the boy's past reputation in the school; (2) the truancy record; and (3) the immediate reason for his being in the school--the prison alternative.

In an effort to clarify Geoffrey's decision making, the observer asked him to respond to the question: "What are the similarities and



differences between Pete and Henry, on the one hand, and Timmy and Joe K., on the other, which lead you to behave differently?" Early in January, Geoffrey wrote a reply into his notes:

When Pete and Henry came to me, they came to me as dead losses. That is, they had a history of doing absolutely nothing in the classroom, and in Henry's case being truant and doing nothing included no nonsense. In the case of Pete, he came to school regularly, did nothing except nonsense. Thus the only deal I would make with these two is that I knew they were going to be there until age sixteen or suspended. If so, I had no objection to their sitting there in perfect silence and creating no nonsense. They would be asked to do nothing, would be given automatic U's, would receive no promotions. This would be in line with the informal understandings of Rooms 11, 13, and 14 on grading and promotion policy.

I cannot do this with Timmy and Joe K. They are both younger and have two or three more years in the school ahead of them. Pete had only a matter of months; Henry less than a year. This is the basic reason why I attempt to get them doing something. I would hate to think that I was the one that resigned them to finishing out their careers like Pete and Henry, although I have no doubt that nothing else would have been any good with Pete and Henry. I do not have the test scores of these children here before me, although as I remember, Henry can function close to a normal level, while Pete, of course, can do nothing. In the case of the two sixth graders, they are both below the mean, but they are really not so far below that they cannot achieve some success in their school work. Both of these students have occasional flickers of decent intellectual functioning, especially Joe. In addition, they both have some energy, again especially in the case of Joe, which has to be channeled in some direction before it finds its outlet in mayhem. Thus I feel a greater responsibility to the two younger students, and I also feel there is a little bit more there to work with. I can think of no other considerations than these. Some may be added at another time. (1/3)

Further complexities of "the contract" arose during a recess coffee break. The observer recorded the issues this way:

Miss Holt asked Geoffrey about his new group, and he replied, "Timmy, Joe K., and Alan." All these kids are known from their hall behavior, playground behavior, and

siblings. Sympathetic grins are given. (LMS--Raises the question of a kid's reputation and the ability of a teacher to alter the child's behavior. When they receive treatment, should they also go to another school? This is a tough one, for they also go with a reputation. For instance, Mr. Alton commented about receiving today a kid with a list of six suspensions. This comes on top of another pupil he got last Friday who also had six suspensions. The latter boy, I think, has given Norton trouble on the playground--two fights in one day. She labels him "No good" and makes a comment about running him out of school. She used different words. I think the phrase was "get rid of.")

Situations of this type are related to the mental health of teachers and lessening their own load of frustration, their attempt to shape the pupils' world, continued strain of high interaction, conflicting demands from institutional supervisors and from recalcitrant subordinates, accumulated frustration of "being patient," and ability to change pupils who are twelve-to-fifteen years old as opposed to working with them in a truce-type equilibrium. (9/30)

Utilizing such data as these we sketched a series of interrelated hypotheses depicted in Figure 1. Essentially we sought the antecedents and consequences of the contract. From the teacher's point of view one might argue that as perceived inability to change a difficult world occurs, as frustration increases, and as attempts to control the world are made then the probability of utilizing "the contract" as a kind of truce increases. Pupil age seems to interact with guilt over "giving up." The contract lessens the number of problems, permits more productive academic activity in the class, and minimizes the learning of one pupil.

---

Insert Figure 1 about here

---

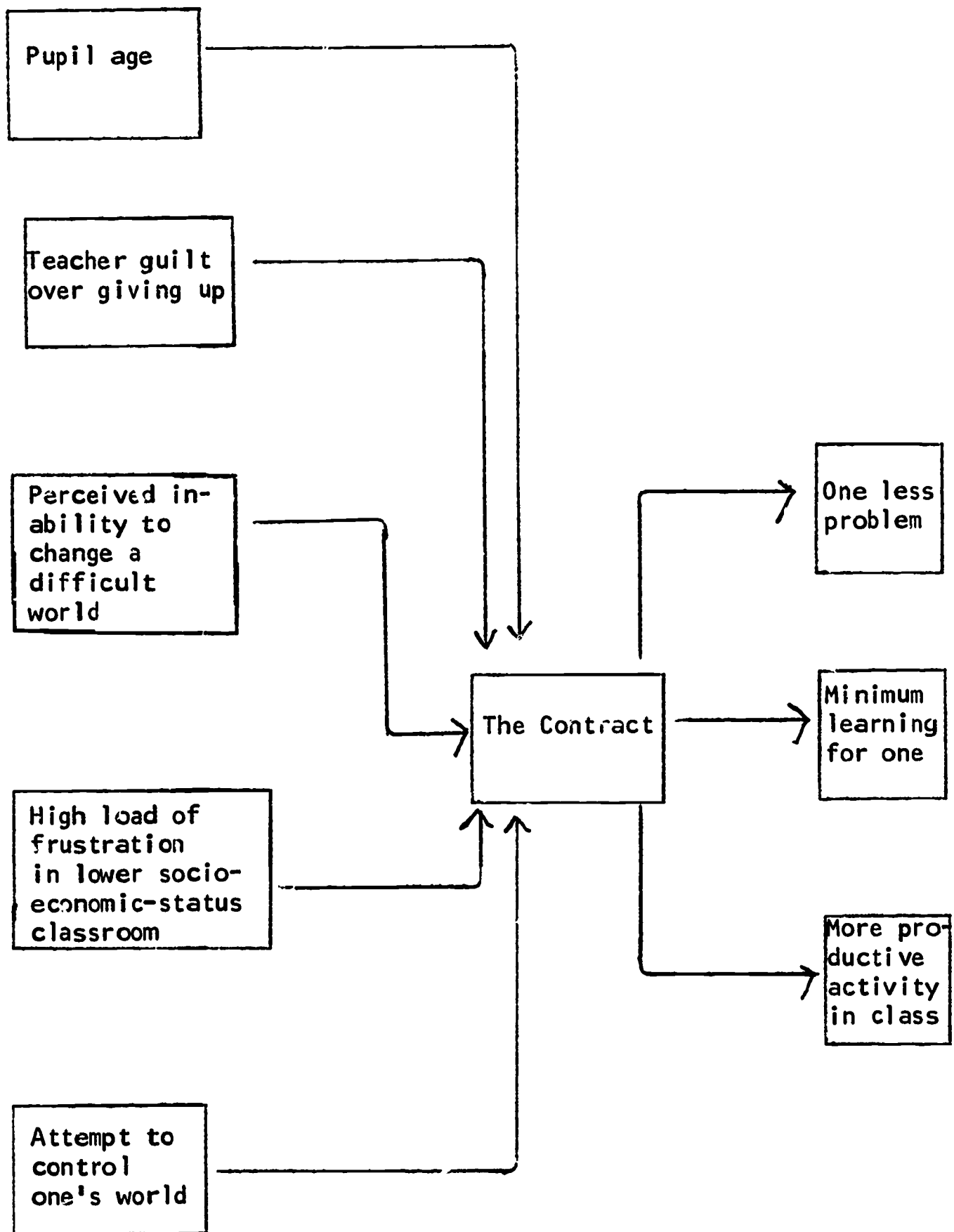


Figure 1 Aspects of "the contract" in teacher-pupil relationships.

The major point I would argue for is that "the contract" is a challenging problem in teaching. The lives of a number of children seem influenced by it. In discussing "the contract" with groups of experienced teachers, the majority responded that it has been a part of their teaching experience. To the best of our knowledge it's not been analyzed and handled well theoretically or practically. We think it should be. We think the participant observer methodology is important for discovering fruitful but unexplored problems such as this and opening them to further analysis.

### Credibility and Validity

The development of ideas such as the contract raises several methodological points. One of these concerns the validity of the ideas in our single case. The second concerns the validity of the model relevant to other teachers and classrooms. Let me raise these separately and in additional contexts. When Professor Connor and I were observing our apprentice teachers at City Teachers College we found ourselves in a stance similar to the anthropologists. For instance, Malinowski, in discussing the "imponderabilia" of actual life, comments:

Living in the village with no other business but to follow native life, one sees the customs, ceremonies and transactions over and over again, one has examples of their beliefs as they are actually lived through, and the full body and blood of actual native life fills out soon the skeleton of abstract constructions.  
[1922, p. 15]

I would urge you to consider the implications of this kind of observation for what a test maker might call the validity of his

measures. In our study we observed our apprentices teach a variety of lessons. We talked with them informally about their problems, plans, intentions, and practices. We listened to them talk with each other and with their cooperating teachers. We talked informally with the cooperating teachers, principals and supervisors. In most instances we got along very well. In some instances we were father-confessors who were out of the authority structure, who knew what was going on, who would listen, and who would empathize. The method has a potency which we came to appreciate only gradually; we think we obtained a valid picture of the City Teachers College apprenticeship, just as we think we obtained a valid picture of Geoffrey's class in the Washington School.

In pursuing the logic of our relationships to the apprentices, we found considerable help in the technical test development literature. In the last decade and a half, APA and AERA have produced a document called Technical recommendations for psychological tests and diagnostic techniques (1954). This spurred considerable discussion and a paper especially relevant to our purposes which was entitled "Convergent and discriminant validation by the multitrait-multimethod matrix" (Campbell & Fiske, 1959). Consider the logic of Campbell and Fiske's analysis as represented in Figure 2, which we have reproduced from their materials.

---

Insert Figure 2 about here

---

Traits	Method 1			P	Method 2		
	A <sub>1</sub>	B <sub>1</sub>	C <sub>1</sub>		A <sub>2</sub>	B <sub>2</sub>	C <sub>2</sub>
Method 1	A <sub>1</sub>	(.89)					
	B <sub>1</sub>	.51	(.89)				
	C <sub>1</sub>	.38	.37	(.76)			
Method 2	A <sub>2</sub>	.57	.22	.09	(.93)		
	B <sub>2</sub>	.22	.57	.10	.68	(.94)	
	C <sub>2</sub>	.11	.11	.46	.59	.58	(.84)

Figure 2 An abbreviated version of Campbell & Fiske's multi-trait-multimethod matrix (1959, p. 82).



The essence of their approach states that investigations of personality traits should be analyzed by measuring a number of traits with a number of methods. For instance, one might be interested in three traits, such as ascendancy, hostility, and activity level. One might measure these through three methods--objective personality tests, projective devices, and sociometric nominations. They argue that the pattern of correlations indicates (1) reliabilities, (2) validities, and (3) method or instrument errors. Note in Figure 2 in the upper left-hand corner. The reliabilities are the figures in parentheses along the main diagonals: (.89), (.89), (.76), etc. The validity coefficients are the shorter diagonal with italicized coefficients. The heterotrait-heteromethod coefficients are in the broken line triangles and the monomethod-heterotrait values are enclosed in the solid line triangles.

Their major argument states that many analyses of test data on personality traits contain large components of method variance. Only as one approaches his problem with multiple kinds of measures of multiple dimensions can one locate these method errors. As some correlations converge at high levels and as others diverge they gather data relevant to an expanded conception of construct validity. As we have thought about our use of participant observation, especially in our apprenticeship study, we felt that the style of our approach had fundamental logical commonalities with that of Campbell and Fiske (1959).

We have expanded their scheme into a multi-method, multi-variable,

multi-person and multi-situation matrix. A glance at Figure 3 indicates that our methods included observation, informal interviewing, and written accounts in the form of logs, lesson plans, and supervisor comments. Rather than investigating personality traits, we were concerned with apprentice schemas and teaching behavior, pupil behavior, teacher-pupil interaction, and organizational variables.<sup>3</sup> Besides the apprentices who were our focal interests, we were involved with cooperating teachers, principals, supervisors, other teachers, and other apprentices. Finally, the situations in which we found ourselves were multiple. Within the classrooms we were involved in several areas of the curriculum. We arrived unannounced as well as announced. We were in classrooms with and without the cooperating teacher being present. Out of the classroom we often saw and talked to our apprentices before and after they taught. Also out of the classroom we frequented the teachers' lounges, the halls, and the offices. Finally, as we have indicated, we were out of the authority structure of grades, reporting, and recommending for teaching positions.

---

Insert Figure 3 about here

---

While our approach was qualitative rather than quantitative and while we did not get "complete" data from each cell in the matrix, we think we obtained a valid picture of our phenomenon, the case study of

---

<sup>3</sup>Actually the full listing of the concepts amounts to the total theory with which one is engaged.

**Methods**

Observation  
Informal interviews  
Written accounts: lesson plans, logs

**People**

Apprentices  
Cooperating teachers  
Principals  
College supervisors  
Other apprentices  
Other teachers

**Situations**

In classroom teaching: (1) announced and unannounced visits  
(2) teaching various parts of curriculum  
(3) teaching with and without cooperating teacher present  
Out of classroom: prior to teaching and post-teaching  
On campus at City Teachers College  
Faculty lounge at the elementary school  
Out of authority structure

**Content**

Apprentice schemas  
Apprentice teaching behavior  
Pupil behavior  
Teacher-pupil interaction  
Organizational variables

**Figure 3**    Validity of participant observation: a multi-method, multi-person, multi-situation, and multi-variable matrix  
(elaborated from Connor & Smith, 1967, pp. 293-296).

an apprenticeship program in teaching. While we have not glorified our procedures with a term such as construct validity, we think our approach captures the best of that point of view. When we say in the vernacular "that's the way it was," we have few doubts about our description and analysis.

### Quantification and Verification

Our analysis of Campbell and Fiske's position has suggested a qualitative rationale compatible with their quantitative approach. We have argued for a potency in the form of valid data from our field work procedures. But still we have the problem of the degree to which our case studies are relevant to the rest of the teaching world. The major position we take is that the kind of field work we have been doing is important for the generation rather than the verification of hypotheses. To accomplish the latter, one moves to other research paradigms. For instance, in our intensive observational study of Geoffrey's classroom we utilized the concept of "teacher awareness" to interpret some of our data. The concept was defined as

a dimension of teacher behavior in which the teacher knows information important in the group members' lives and indicates his knowledge to the group. [p. 470]

One of the explicit illustrations used to educe the concept was the teacher's teasing of an adolescent boy about his girl friend and about the fact that he, the teacher, might have to move their seats. Besides the two adolescents, at least one audience pupil had an incredulous look on her face. A second illustration involved a pupil's seeming

intention to "fool" the teacher in getting an extra turn at a simple and pleasurable alphabetizing task. The teacher caught her at the game and she responded with a sheepish grin and a return to her seatwork. We developed a number of hypotheses surrounding the phenomenon of teacher awareness.

My colleague Paul Kleine and I sought to explore the implications of this concept of teacher awareness. In an intensive theoretical analysis of the concept of cognitive complexity as this has grown out of the Kelly (1955) tradition and cognitive differentiation from the Witkin (1962) tradition, Kleine (1968) argued for the theoretical similarity of the ideas. Each is concerned with the degree of structure (differentiation or complexity) the individual possesses in his conceptual organization of the environment. We predicted that these personality variables would correlate with teacher awareness and would be important antecedents of this part of the ongoing classroom situation. That is, the teachers with the more differentiated and complex cognitive structures would be more aware, more knowledgeable of the ongoing classroom social system. In our analysis we hypothesized also that teacher awareness, the knowledge of events in pupils' lives, leads to esteem by pupils. Pupil esteem refers to the generalized sentiment which the pupils hold for the teacher. For many years commentators have talked about pupil attitudes toward school, toward lessons, and toward their teachers. Some investigators of attitude learning and opinion change (Hovland et al., 1953) have argued that prestige and esteem are important social psychological variables.

While the conception of teacher awareness began with several intriguing illustrative observations from our field study (Smith & Geoffrey, 1968), the translation we made for quantitative purposes proceeded as follows:

- (1) each teacher rank ordered her pupils on three dimensions:  
popularity, arithmetic ability, and psychomotor ability;
- (2) the pupils in each class filled out a best friends choice type sociometric questionnaire regarding their classmates. They took a short arithmetic achievement test. And they filled out a "Guess who?" type sociometric perception questionnaire regarding psychomotor ability;
- (3) correlations between teacher rankings and pupil measures were obtained for each classroom;
- (4) the correlation coefficients were converted to  $z$  scores and combined to form a single score of teacher awareness.

Methodologically, a sample of 69 teachers and their classes was drawn from the CEMREL region (Tennessee, Kentucky, Missouri, and Illinois). Some were from rural and small town communities; others were suburban. The majority of teachers were female (58). Their range of experience varied from one to forty-nine years and averaged sixteen years. All classes were at the fifth and sixth grade levels.

Among the results we found a significant correlation between cognitive complexity and teacher awareness and a significant correlation between teacher awareness and pupil esteem.<sup>4</sup>

---

<sup>4</sup>Correlational data have known and admitted limitations for cause-effect interpretations.



However, my point is not theoretical but methodological. We have found the field study important for the generation of concepts, hypotheses, and miniature theories. These ideas can then be operationalized, quantified, and tested in broad-scale correlational analyses as we did with "teacher awareness." Hopefully also, these ideas can be moved into even more rigorous experimental designs. Only after that kind of endeavor can one have confidence that the findings pertain to more than our one case. The blending of the techniques seems to produce extra benefits.

#### An Application to Curriculum Evaluation

To this point we have stressed concepts in teacher-pupil relations and methodological issues of validity and generalizability.

One might focus on a possible contribution to problems faced by individuals engaged in supervision and curriculum activities. As a concluding illustration from our work I would like to indicate our efforts at CEMREL in the evaluation of a computer assisted instruction program (Russell, 1969). The instruction involves Appalachian children in Eastern Kentucky who receive the Stanford drill and practice program via long distance telephone lines. In effect, a child sits at a standard teletype terminal in a rural or small town school in the highlands of Eastern Kentucky. In the school the terminal locations are as varied as in a back corner of a classroom, within a small book closet, or in a crowded main hallway of a school. The child types in his number and first name; the signals go to California and return.

His last name, the title and number of the lesson, and the first problem are typed out for the child. The problems may be as simple as  $2 + \underline{\quad} = 4$ , or as difficult as  $3489$  divided by  $7$ . The children typically spend several minutes and work a dozen problems per lesson. When the program is working they will typically do one or more lessons per day.

As reported by Suppes and his colleagues (1968), the Stanford experience utilizing CAI with children in the Bay area has been successful. The problem faced by CEMREL was the development of an independent evaluation of this curriculum in the schools of Appalachia. As we raised the various subquestions implied in such an evaluation we developed what we came to call our "three-legged evaluation model." In a sense, we are utilizing another variant of Campbell and Fiske's heteromethod-heterotrait approach. Howard Russell has been responsible for what we have called the "experimental design" leg. Children from classes in nine schools have been assigned randomly to the experimental program and a control group. Forms of the Stanford Achievement Test were administered three times: as a pretest, interim posttest and final posttest. Halfway through the program, the original control group went on the program and the original experimental group became the controls. The obvious intent here was a quantitative assessment of the impact of the program on academic achievement in computation, concepts, and applications in arithmetic. Such data have been traditionally at the core of curriculum evaluation.

The second leg of the evaluation utilized survey research methods;

it was handled by Emily McIntire and Leo Rigsby. Careful sampling of attitudes and beliefs of teachers, children, and parents were obtained through questionnaires developed for the program. Frequency distributions, cross tabulations, and quantitative precision were possible on carefully drawn samples of individuals involved in the program.

The third leg of the evaluation involved a participant observer study of the utilization of the program. My colleague Paul Pohland and I have been engaged in the description and analysis of the mundane day to day operation (Smith & Pohland, 1969a, 1969b). We have observed children at the teletypes, talked with teachers about the joys and tribulations, and inquired into arithmetic instruction. As it turned out, the problems in keeping the program running have been severe. This has moved us into a careful and serious consideration of the problems in putting highly sophisticated 21st Century Technology into an impoverished rural area of the nation. Our preliminary analysis suggests issues in both complex technical and social systems. The roots of the innovation problems are as varied and complex as congressional funding patterns (lateness, cuts, rerouting through the state department) and the mobilization of five independent telephone companies to install lines and equipment. We think we have important data for understanding this kind of curriculum change.

The major point I would make is not that people have not used direct observation in curriculum development and evaluation, but that they have not exploited it as a major tool in the analysis. In a

recent AERA curriculum evaluation monograph, Grobman (1968) devotes several pages to what she calls "visits." Her introductory paragraph states:

No project can afford to omit classroom visits, and such visits can serve a variety of purposes. Visits can serve to verify other feedback or to put it in a more meaningful context. Teachers who are reluctant to write criticism or who find writing difficult may talk quite openly in a face-to-face encounter. Conversation with school officials, teachers, students, and parents can elicit information that cannot be provided by questionnaires and may open up new avenues of thought not previously considered by the project.

In effect, we have taken seriously her doubts regarding the validity of responses people give. More basically though, we see the participant observer strand as an attempt to describe and conceptualize the nature of a very complex independent variable--the nature and utilization of the new curriculum. Such a research strategy has a potency which we feel has not been utilized fully. In future work we hope to study new curricular development in mathematics, aesthetic education, and social studies.

#### Continuities between Ethnography and Ecology

At this point, I hope you have a concrete image or two of classroom ethnography as we practice it and an image or too of its relationship to more orthodox approaches and methodological problems in educational psychology. Now, I would like to indicate some continuities between ethnography and ecology. This I do with some excitement because my friend Paul Gump, who is a bona fide psychological ecologist,

is also on the program.

### Observation

Perhaps the best way to introduce these continuities is to relate an anecdote of an experience we shared in Toronto several years ago. We were at a conference on "New Directions in Research on Teaching" and were jousting with the factor analysts and the experimentalists during the day. Our evenings were free so we took a busman's holiday and went observing the ethnography and ecology of the night life of Toronto. One evening we spent in Yorkville, a teenage hippie quarter of Toronto near OISE, the Ontario Institute for Studies in Education. As we drank coffee, and it was coffee because of the teenage aspect of Yorkville, we focused our attention on two girls at separate tables, one of whom appeared to be writing a letter and the other who alternated between sitting and apparently attempting to strike up a conversation. The distance was too great for us to overhear them. The busman's holiday game we played was conjecturing hypotheses and interpretations about them from the nonverbal cues of mannerisms, posture, and responses to interruptions--the latter occasioned by a wandering poet peddling mimeographed sheets of his verse, by waitresses, and by the guitar playing and singing entertainers. Later, as we strolled the streets and were stopped by youngsters hawking underground newspapers we moved in and out of conversations with the kids and explored their backgrounds, outlooks and point of view. Our own conversation alternated between wrestling with interpretations of the "data" assailing us and

comparing his experiences in researching Big School, Small School (1964), the study of ten Kansas high schools, and my recollections of experiences as a student at Topeka High, the largest of his ten schools. It was a memorable evening.

Our second night was more sensational, if not as subtle. By chance we ended up in a gay bar and restaurant. Discerning the transvestites from the females was no mean chore. Discovering the perfume and cologne dispensers in the men's room was a new experience for me. But that's another long story which I'll leave for Professor Gump.

The point that I wish to make is that ethnography and ecology begin with close, attentive, and hopefully insightful observation. In those two brief evenings we learned a good bit about Toronto that could not be acquired readily by other data gathering devices.

The psychological ecologists have used observation techniques to produce data called specimen records. These records illustrate well the tremendous effort involved in obtaining records useful for quantification and hypothesis testing. If Professor Gump does not speak directly to issues such as the ripple effect in discipline, the "it" role in children's games, or camping milieu influences on camper behavior, then we should question him directly in the small group meetings. While many of those papers were small in scope and pinpointed in goal they have been provocative examples for us as we developed our observational style.



### Analysis of the Environment

While a case can be made for variations in field work methods and emphases, our analysis suggests that classroom ethnography and ecology have a further common orientation and thrust. This is an analysis of the environment and its relationship to the human activity which takes place in the environment. Ecology, by definition, is a study of the interrelationships between living organisms and their environment. Barker and Wright's (1954) use of the term psychological ecology refers to a concern ". . . with the psychological habitats of . . . children and with the structure, dynamics, and content of their behavior in these habitats." [p. 1]

An extrapolation of this point has been made by Miller and Dollard (1941) as they combined their psychological and anthropological orientations to study social learning and imitation. They comment:

To understand thoroughly any item of human behavior--either in the social group or in the individual life--one must know the psychological principles involved in its learning and the social conditions under which this learning took place. It is not enough to know either principles or conditions of learning; in order to predict behavior both must be known. The field of psychology describes learning principles, while the various social science disciplines describe the conditions. [p. 1]

Later they continue the same point:

If social scientists find the knowledge of learning principles valuable in solving problems in their field, psychologists will find it no less useful to emphasize the conditions under which human learning takes place. These conditions for human beings are primarily social and cultural conditions. No psychologist would venture to predict the behavior of a rat without knowing on what arm of a T-maze the food or the shock is placed. It is no easier to predict the behavior of a human

being without knowing the conditions of his "maze," i.e., the structure of his social environment. Culture, as conceived by social scientists, is a statement of the design of the human maze, of the type of reward involved, and of what responses are to be rewarded. It is in this sense a recipe for learning. This contention is easily accepted when widely variant societies are compared. But even within the same society, the mazes which are run by two individuals may seem the same but actually be quite different. [p. 5]

As a psychologist, I believe we have spent most of our efforts on the principles of learning and not enough on the conditions--especially conditions or environment of classrooms. As this emphasis is shifted we will be in a more viable position for analyzing a variety of problems, not only in educational psychology, but also in the significant issues which you face in supervision and curriculum development.

#### Concepts and Theory from Ecology

As I read the conceptual structure of the ecologists, both biological and psychological (Odum & Odum, 1959; Buchsbaum & Buchsbaum, 1957; Barker & Wright, 1954; Hobbs, 1966), I have a mixed reaction. As I have indicated, the emphasis on environmental analysis I find appropriate. The concern for systems and interdependency of variables I also find congenial. Such ideas fit the kinds of models we have been building. At a kind of metatheoretical level they think about problems in much the same way we try to do. The ambivalence relates to the analytical concepts which they utilize.

Barker and Wright's discussion of behavior settings, the parts of the Midwest community, illustrates one such problem. As they describe

Clifford's Drug Store, the Methodist Church, and the 4-H Club they deal with settings in concrete descriptive terms. Such environmental discriminations are lawfully related to behavior, that is, people do different things in these settings. The problem with which we are wrestling is the more abstract dimensions or latent variables that make these settings similar or different. This is analogous to the question we keep asking of classrooms. Miss Brown's class and Miss Jones' class are two different settings, but what are the dimensions of classrooms along which these two might be placed for purposes of contrast and similarity. Similarly, one of Gump's most provocative papers involves important differences in camper interaction that occurs during cookouts and swimming. The cookout activity evokes about five times the amount of counselor intervention behavior. Assuming this is replicable, it is a major difference in human behavior. The issue I am reaching for concerns the latent dimensions of such activities as cookouts and swimming. For instance, are the sequential and coordinated time demands implicit in building a fire, preparing food, cooking and eating the items which are critical? Is it the concomitant food deprivation which is making the kids active and irritable? Is it prerequisite skills necessary for carrying out activities which are unavailable in the kids' repertoires or at a low level of development which create the effect? As I have posed questions such as this to experienced teachers, they have responded with considerable interest and with a variety of extrapolations to the classroom. Such a quest seems fundamental to an ecology of the

classroom. Hopefully we can raise some of these over the next few days.

### Conclusion

In conclusion, it has been a long hour. The soft sell has been a harder sell than I originally intended. A Steinbeck would have been more gentle, more subtle. The excitement we have found in participant observation research propels me with a kind of urgency. We think it has important continuities with what anthropologists do and with what biological and psychological ecologists do. The development of concepts such as "the contract" and "teacher awareness" and the building of miniature or middle-range theories of their antecedents and consequences we think is both stimulating and important. The validity of our data gathering seems closely related to issues discussed by measurement specialists as construct validity or the multitrait-multimethod matrix. The possibilities seem great for designing experiments and verificational studies relevant to these models. Finally, I think that the method can be adapted and applied to significant issues faced by persons in curriculum development and evaluation. I hope you will give it a try.

## References

- American Psychological Association, Committee on Psychological Tests. Technical recommendations for psychological tests and diagnostic techniques. Washington, D. C.: APA, 1954.
- Barker, R. G., & Gump, P. V. Big school, small school. Stanford, Calif.: Stanford University Press, 1964.
- Barker, R., & Wright, H. F. Midwest and its children. Evanston, Ill.: Row, Peterson, 1954.
- Buchsbaum, R., & Buchsbaum, M. Basic ecology. Pittsburgh: Boxwood Press, 1957.
- Campbell, D. T., & Fiske, D. W. Convergent and discriminant validation by the multitrait-multimethod matrix. Psychological Bulletin, 1959, 56, 81-105.
- Connor, W. H., & Smith, L. M. Analysis of patterns of student teaching. Washington, D. C.: U. S. Office of Education, Bureau of Research Final Report 5-8204, 1967.
- Grobman, H. Evaluation activities of curriculum projects: A starting point. Chicago: Rand McNally & Co., 1968.
- Hobbs, N. Helping disturbed children: Psychological and ecological strategies. American Psychologist, 1966, 21, 1105-1115.
- Hovland, C. I., Janis, I. L., & Kelley, H. H. Communication and persuasion. New Haven: Yale University Press, 1953.
- Kelly, G. A. The psychology of personal constructs. New York: Norton, 1955.
- Kleine, P. The interrelation of psychological and cognitive differentiation in two experimental tasks in an educational setting. Unpublished doctoral dissertation, Washington University, 1968.
- Malinowski, B. The argonauts of the western Pacific. London: Routledge, 1922.
- Miller, N. E., & Dollard, J. Social learning and imitation. New Haven: Yale University Press, 1941.
- Odum, E. P., & Odum, H.T. Fundamentals of ecology. (2nd ed.) Philadelphia: Saunders, 1959.

- Russell, H., et al. Evaluation of computer assisted instruction program: Interim report. St. Ann, Mo.: CEMREL, 1969.
- Smith, L. M., & Brock, J. A. M. Teacher plans and classroom interaction. Unpublished final report. CEMREL, in process.
- Smith, L. M., & Geoffrey, W. The complexities of an urban classroom. New York: Holt, Rinehart, and Winston, 1968.
- Smith, L. M., & Keith, P. Social psychological aspects of school building design. Washington, D. C.: U. S. Office of Education, Cooperative Research Report #S-223, 1967.
- Smith, L. M., & Keith, P. Fantasy and reality in the language of the new technology. Educational Technology, 1968, 8(23), 5-9.
- Smith, L. M., & Keith, P. Anatomy of educational innovation. New York: Wiley, 1970.
- Smith, L. M., & Kleine, P. F. Teacher awareness: social cognition in the classroom. St. Ann, Mo.: CEMREL, 1968. (Mimeo)
- Smith, L. M., & Pohland, P. A. Grounded theory and educational ethnography: a methodological analysis and critique. St. Ann, Mo.: CEMREL, 1969.
- Smith, L. M., & Pohland, P. A. Participant observation of the CAI program. In H. Russell (Ed.) Evaluation of computer assisted instruction program: Interim report. St. Ann, Mo.: CEMREL, 1969.
- Steinbeck, J. Travels with Charley. New York: Viking Press, 1962.
- Suppes, P., Jerman, M., & Brian, D. Computer-assisted instruction: Stanford's 1965-66 arithmetic program. New York: Academic Press, 1968.
- Witkin, H., et al. Psychological differentiation. New York, Wiley, 1962.